

## ABSTRACT

A method of identifying an object in a laser beam illuminated scene based on material types comprises the steps of: emitting a pulsed beam of laser energy, each beam pulse comprising a plurality of different discrete wavelength emission components; illuminating a predetermined scene with the pulsed beam; receiving return laser pulses from objects within the illuminated scene, each return laser pulse comprising return components corresponding to the plurality of different discrete wavelength emission components; determining spectral reflectance values for the plurality of return components of each return laser pulse; determining a material type for each return laser pulse of the illuminated scene based on the plurality of reflectance values of the corresponding return pulse; indexing each determined material type to a position in the illuminated scene; and identifying an object in the illuminated scene based on material types and indexed positions thereof in the scene. A counterpart system for carrying out the method is also disclosed.